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State Economic Development Information Systems

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State Economic Development Information Systems

Abstract

The expanded role of state governments in economic development has increased their need for a wide variety of economic, demographic, and marketing information. Many state governments have responded to these needs by developing systems to deliver economic and related information to state and local economic development offices, businesses, and the general public. This paper reports the results of a survey of economic development officials designed to disclose information about how extensive automated system development is, as well as to learn about system structure and operating characteristics, the quality and quantity of the data distributed, and any particular system strengths and weaknesses. A clear definition of agency goals, cooperation among state agencies, and communication with the targeted users are found to be important to the success of a development data system.

Keywords

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Disciplines

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ABSTRACT

The expanded role of state governments in economic development has increased their need for a wide variety of economic, demographic, and marketing information. Many state governments have responded to these needs by developing systems to deliver economic and related information to state and local economic development offices, businesses, and the general public. This paper reports the results of a survey of economic development officials designed to disclose information about how extensive automated system development is, as well as to learn about system structure and operating characteristics, the quality and quantity of the data distributed, and any particular system strengths and weaknesses. A clear definition of agency goals, cooperation among state agencies, and communication with the targeted users are found to be important to the success of a development data system.

STATE ECONOMIC DEVELOPMENT INFORMATION SYSTEMS

The role of state governments in local economic development has continued to increase during the past 30 years. Before the important economic and political restructuring of the 1970s and 1980s, the major activity of state government in economic development was recruiting new industry, primarily manufacturing. While recruiting remains an important component of some state economic development policies, other strategies to increase income and employment have gained prominence; recruiting is no longer the principal way to advance state development objectives, and officials realize that the federal government's role in local development initiatives will diminish.

New state economic development strategies focus on maintaining, supporting, and expanding existing businesses, and on cultivating new indigenous industries. This shift in development strategy has altered the information set required by administrators who execute these new policy functions. Development professionals need to understand their states' primary industries as well as their economic environments in order to assist potential and existing businesses. Directing new as well as current entrepreneurs to sources of capital and technology, and helping businesses participate in national and international markets, are two ways state governments can support economic development on a broadened front. These new roles require an expanded arsenal of economic and related information.

Policymakers also have changing information requirements. At a time of experimental policies and aggressive development initiatives, accurate and timely economic statistics are necessary to evaluate the effectiveness of new development efforts, and to assist with allocating scarce resources to projects that can more quickly propel states and communities toward their development goals. Demographic and economic trends related to employment and migration must be monitored closely so

states can respond proactively to accommodate adjustments to these changing environments. In short, the new role of state governments in economic development has increased the need for a wide variety of economic, demographic, and marketing information. The information needs of both private and public decision makers continue to grow as economic globalization further complicates the designing and implementing of development strategies, as well as modifying the economic choices of private sector agents that these policies are intended to support.

While the need for economic information continues to grow, so does the capacity of information technology and information systems professionals to distribute the required data quickly and extensively at a reasonable cost. Recognizing both the growing need for economic data and the opportunity to meet this need, many state governments have developed or planned systems to deliver economic and related information to state and local economic development offices, businesses, and the general public. The needs to which these data are applied vary from state to state, but ultimately the data are intended to become an important tool for both policy development and program administration. The number of data system users is increasing as systems become more accessible and include a broader range of data. While state and local development agencies are traditional users, other state agencies, businesses, and the general public are becoming more frequent clients.

In order to investigate the pervasiveness, diversity, and dynamics of state economic development information systems, the National Governors' Association and the Center for Agricultural and Rural Development (CARD) at Iowa State University sent a survey to each state economic development agency. The survey was designed to disclose information about how extensive automated system development is, as well as to learn about system structure and operating characteristics, the quality and quantity of the data distributed, and any particular system strengths and weaknesses. Special emphasis was placed on learning about differences between rural and urban data availability and quality.

The survey was sent to state economic development agencies. Those agencies returning the survey are listed in Appendix A. Development analysts are often the primary users of economic and related data, as well as being operators and managers of the primary source of economic development data in a state. However, there are some data systems that are not affiliated with an economic development agency. This discussion focuses exclusively on the data systems about which the surveys were completed; that is, systems used and/or operated by economic development agencies¹. Note that some answers are subject to the respondent's view of the system, its characteristics, or its users. This report reflects how the development agency views its data system. A total of 35 states returned the survey. A copy of the survey, with frequencies for answers to questions that are not open-ended, is included as Appendix B.

Survey results are reported here, and general observations are made about common and unique approaches to meeting the needs of development data systems users and solving problems of systems configuration and data maintenance and distribution. This paper provides an overview of the basic structure and operating characteristics of the systems, discusses and compares details regarding the establishment and maintenance of the system, identifies strategies used by different states to market their systems and support their users, and examines the content and quality of the data delivered as well as addresses the problem of inconsistencies in data from urban and rural areas. The strengths and weaknesses of the systems, as perceived by development agency administrators, are then summarized. Based on the survey responses, recommendations to develop new systems and improve existing systems are made. The final section presents a summary and recommends further research as economic development goals are modified to reflect the requirements of new policy approaches.

Overview and Basic System Characteristics

There are several data system characteristics that describe its basic operating environment.

Automation refers to the system's capacity to store, retrieve, and update information with a minimum of labor. The reference to a data system as automated usually means that data records are computerized, and that data retrieval involves finding the record stored in an electronic medium. Virtually all economic development agencies' data are automated to some extent, and classifying of a system as automated is a question of degree. The importance of automation lies in the system's capacity for fast and efficient data storage and retrieval.

Details of how users gain access to data maintained on a system affect how widely the system is used, who its principal users are, how conveniently and easily data are available, and the cost. Access also affects the details of system maintenance requirements as well as the need for user support.

System architecture refers to the system's hardware and software, and how system managers and users are connected to each other and to the system. The importance of system architecture choice lies in the differing degrees of flexibility, user friendliness, and set-up and maintenance costs.

Automation

Of 35 states responding to the survey, 25 answered yes when asked, "Does the state economic development office have a centralized, automated information system?" Table 1 and Figure 1 show the distribution of states according to their responses. However, the simple yes or no answer does not adequately reveal the variation in the level of system automation, the extent to which databases are centralized, and the breadth of available data services provided by centralized systems.

Table 1. Automated system access as reported by responding states

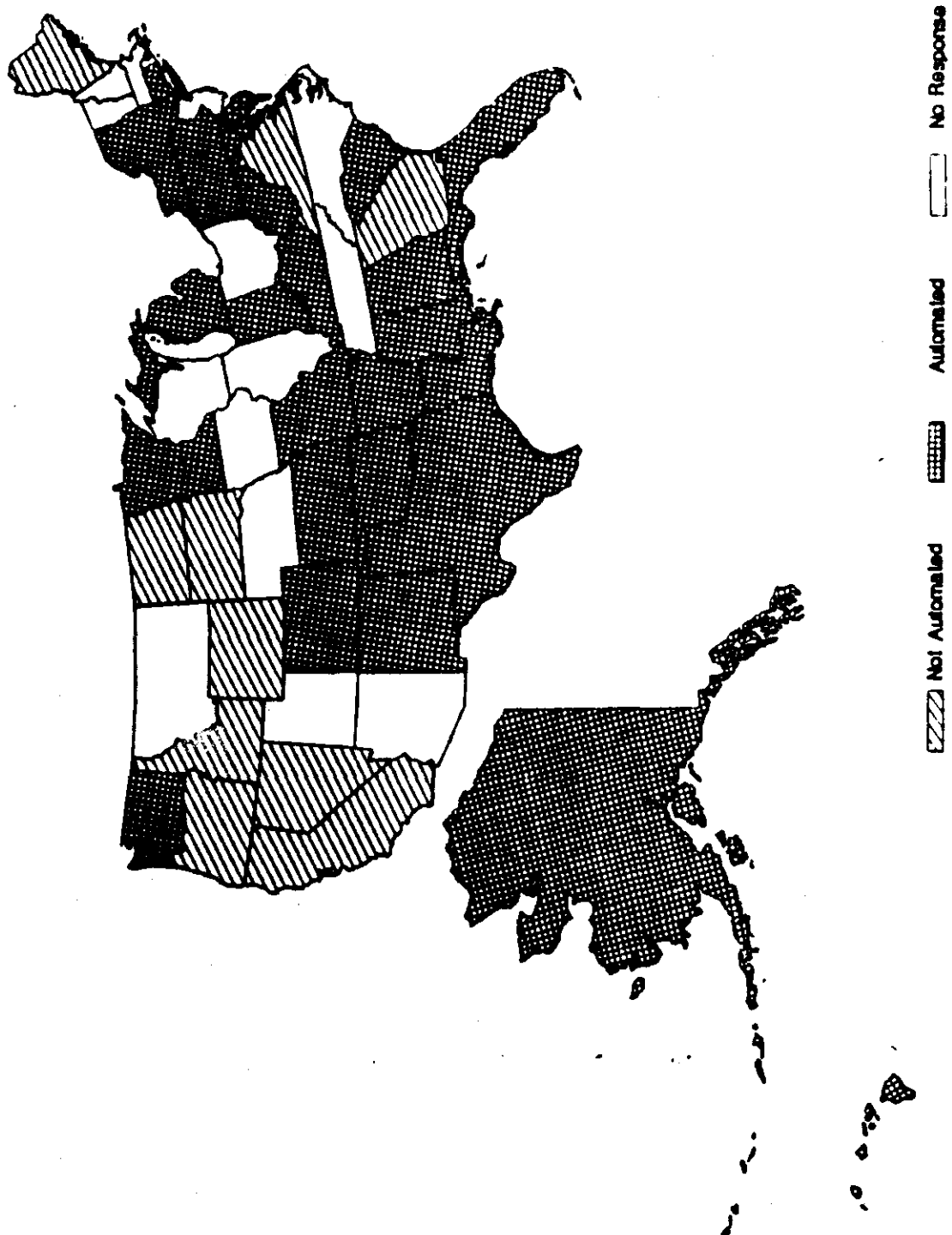
States with Automated Systems		States without Automated Systems
Electronic Remote Access		
Alaska	Michigan	California
Colorado	Mississippi	Georgia
Connecticut	Missouri	Idaho
Delaware	New Mexico	Maine
Florida	New York	Nevada
Hawaii	Oklahoma	North Dakota
Indiana	Texas	Oregon
Kansas	Washington	South Dakota
Maryland	West Virginia	Virginia
		Wyoming
No Electronic Access		
Alabama		
Arkansas		
Kentucky		
Louisiana		
Minnesota		
Pennsylvania		
South Carolina*		

Note: Total respondents, 35. Of these, 48.6 percent used electronic remote access; 22.8 percent had automated systems but no electronic access; and 28.6 percent of respondents had no automated systems.

*An external access system is being developed.

As stated earlier, the answer to this question is a matter of degree. Within the set of states answering yes, some maintain statewide data networks connecting a number of data subsystems, allowing users access to virtually any economic, demographic, or policy variable collected by any state or federal agency. For example, Michigan's system connects the economic databases of several universities to the development agency's system. The user is relatively free to use all of these information sources. Some states maintain more modest systems of only a small network of personal computers, restricted to staff use, with several maintained databases.

Figure 1. States responding, by degree of system automation



Access

One distinguishing characteristic of an economic development information system is whether or not it is configured for remote electronic access for users other than economic development agency staff. As shown in Table 1, about one-half of states responding to the survey are equipped for remote electronic access by external users. This does not imply that external remote access systems are necessarily more sophisticated or advanced. Comments regarding past and expected improvements in many states' data systems revealed two distinct strategies used by states to develop a comprehensive, sophisticated data collection and dissemination system to meet the needs of intended users. The first strategy begins with internal development of an advanced system for economic development agency staff use, followed by a dial-in system to make data available to external users. This seems to be the choice of both South Carolina and Pennsylvania development agencies. Based on experience from their internal system, the staff of the South Carolina State Development Board has recently restructured the system architecture to allow eventual access by external users. However, extensive database and software development will be completed before the system is available to outside users. Pennsylvania has been working toward integrating separate systems into a single system, with the long-range goal of providing external access.

A second strategy is to open the system to external users in the early development, and use this early feedback from external users to improve the system and increase the breadth of available data. This is the approach of Hawaii and Mississippi; Hawaii's system has evolved continuously and Mississippi initially plans to make available to external users a PC bulletin board with limited data and will add data sets as they are requested and developed.

System Architecture

Figure 2 shows that states are about equally divided between mainframe hosted and personal computer (PC) based systems. Minicomputer or mainframe host systems are used exclusively by nine

of the 25 states with automated systems, and 10 use PC based systems exclusively. Five states use both a mainframe host system and a PC based system. The remaining state, Maryland, uses a voice processing system called TeleSonic, which allows anyone with a touch tone phone to obtain several categories of data related to business development. An automated system that would be more suitable for handling large data sets is being developed.

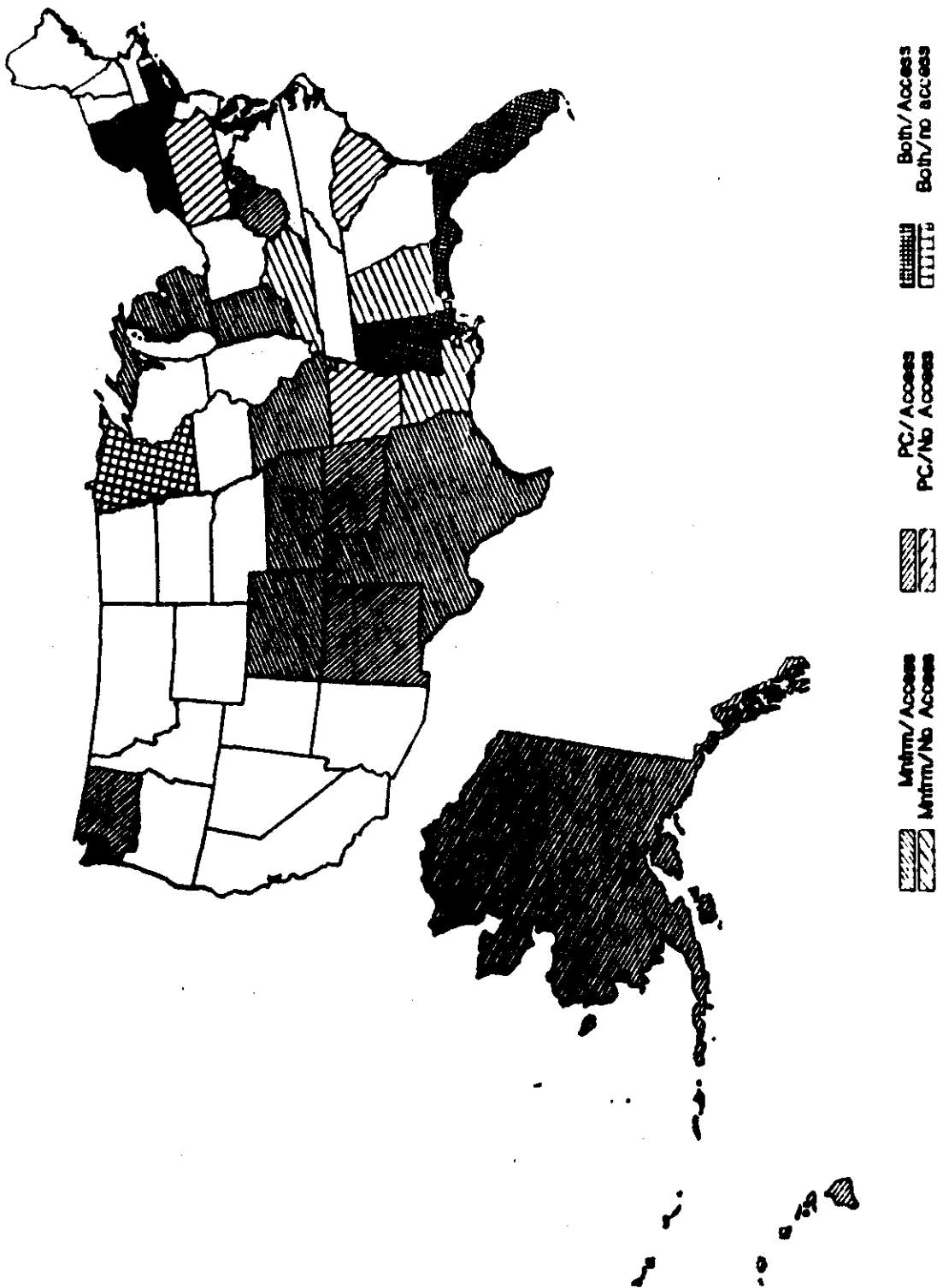
The choice of a mainframe or a PC host system is affected by a number of factors. Many states operating their data systems on a mainframe purchase space from universities or other agencies that own and operate large mainframe computers. Mainframe environments generally allow storage of and access to more data than is available on a PC network/bulletin board system. Mainframe systems generally require more programming support, which in some cases can be provided through universities or other state agencies. Personal computer networks or bulletin boards can be less expensive to purchase and maintain, and may be less overwhelming to users.

Eight mainframe systems are configured for external access to the host system. Two states use both mainframe and PC systems, but only allow external remote access to the PC component. Typically, agency staff use the mainframe system to process data and download selected data sets to the PC network or bulletin board system, which can then be accessed by external users, as in New York and Connecticut. Remote external access to a network or bulletin board is allowed in 11 of the 15 states with PC based systems.

Remote users can access the data systems on toll free lines in seven of the 18 systems configured for remote access. Most of the states using toll free access specified that they are only toll free for in-state users. All systems allowing remote access are available virtually 24 hours day. In Missouri, the system is taken off-line for two hours every week night for back-up.

Remote electronic access is only one way to disseminate economic development data. As shown in Table 2, 16 of 25 states with automated systems reported that they provide external users

Figure 2. States by system type and access



with data on diskette or computer tape. In fact, this is an important vehicle for data dissemination in six of the seven states without external access systems. In states with electronic access systems, if users are not able to take advantage of dial-up capacity because they lack appropriate computer equipment, they are accommodated with data in another electronic form in more than one-half of these instances.

Table 2. Availability of data in electronic format

	Number	Percent
States with Direct Access Systems	10	55.6
States without Direct Access Systems	6	85.7
States without Automated Systems	1	10.0

Hardware and Software

Table 3 shows the wide variety of mainframe and minicomputers used by states for their economic development information systems. Of the 14 states using mainframes or minicomputers, 11 different systems were mentioned. However, there was much more agreement about preferred software for remote access; of states recommending specific software, more than 60 percent recommended Procomm or Procomm +. CrossTalk also was recommended by more than 20 percent.

System Development and Maintenance

Because budgets to develop information systems are necessarily constrained, a development agency's ability to set up a system without costly outside assistance could be an important consideration. Similarly, the cost of labor to maintain the system might affect the choice of system architecture. These factors can be influenced by the relationships between the agency and universities or other organizations with whom they might seek to share the cost and labor required to develop and maintain a data system.

Table 3. Host systems and recommended software

Mainframe or Minicomputer Systems	States	Recommended Communications Software	States
IBM AS/400	KS	Carbon Copy +	FL
IBM System 38	LA	CrossTalk	IN, OK, LA
IBM 9370	MO	Kermit	IN
DEC VAX 6400	MI	Procomm or Procomm +	DE, IN, MO, NM, NY, OK, TX, WV
DEC VAX 880	IN	Reflections II	MI
CYBER 72	MN	Softterm PC	CO
Unisys 52	AL	Smartcom II	LA
Prime	CO	VS Comm	PA
UNIX	KY		
DG MV 18,000	TX, MS		
Wang 7120	PA		

Development

Table 4 shows that about one-half of state development agencies initially set up their data systems without external assistance. The agencies employed external consultants to aid the staff in 40 percent of the states; in two states, the consultant had primary responsibility for system development. Indiana University developed its own state system and also has primary responsibility for its maintenance.

Table 4. Personnel responsible for system set-up

System Type	Agency Staff	Outside Consultants	University Staff	Agency Staff with Consultants	Total
Mainframe Only	4	0	1	4	9
PC Only	4	1	0	5	10
Both	4	0	0	1	5
Other	0	1	0	0	1
Total	12	2	1	10	25

Employment of outside consultants did not vary much between PC and mainframe systems. Systems were set up by the agency alone in four of nine states with mainframe systems only, about one-half of states with microcomputer based systems, and in four of five states using both mainframe and PC systems. Outside consultants were used most frequently by states with systems using only a PC environment.

Relationships with Other Organizations

Economic development information systems are stored exclusively on university computers in three of the states with automated systems. In another three, some component of the system is located on the university computer. In Colorado, the system is located in another state agency. In these instances, relationships with universities and other agencies have been crucial to the formation of their economic development information systems.

There are several benefits from relationships with other organizations. First, universities and large state agencies that must administer large databases, such as departments of transportation, usually own large mainframe computers from which the agency can purchase computer processing time and storage space, eliminating the need to purchase a mainframe or minicomputer for complex data processing and large data set storage. Second, programmers from these agencies often can bring a level of expertise to a system's development and maintenance that agency staff may not have by itself. Third, university professionals and staff of other state agencies may contribute to the analysis of development data. This is true in Michigan, where the University of Michigan prepares county profiles. Fourth, universities or other agencies often are involved in system development related to other programs, such as the State Data Center Program, and burden sharing can be financially prudent. Cooperation with state data center affiliates is discussed below. In Alaska, the economic development information system is supported by the Small Business Development Center, which is affiliated with the University of Alaska. The funding provided to the SBDC to maintain the system

relieves the state development agency from much of the associated financial burden. Finally, many larger computer systems are able to communicate with one another through networks, allowing access to a wide variety of data and expertise, and eliminating duplication of data storage and analysis that might otherwise occur.

Staff Requirements

Table 5 summarizes the maximum, minimum, and average labor requirements of state economic development information systems. The average number of employees, in full time equivalents (FTEs), required to maintain an economic development information system was 3.5 overall. The range was very wide. The highest number, 12.0, and the smallest, 0.5, were both reported by PC system users. This reflects diversity in the complexity, maintenance, and programming requirements of PC based systems. The labor requirement was slightly lower than average for systems using mainframe or minicomputers only, and the range was more narrow. States using PC systems employed, on the average, 3.3 FTEs, and states using both a PC and mainframe system averaged 4.1 FTEs. States using only mainframe computers were most likely to employ a dedicated programmer, while states with both mainframe and PC systems were least likely to employ a dedicated programmer. This may be due to the number of states with working relationships with other organizations, relieving them of most system maintenance. All states using both types of systems have some working relationship with other organizations.

User Charges

Most economic development agencies do not charge for access to their information systems. In direct access systems in which no toll free number is provided, users generally are required to pay only their line charges while they are connected to the systems. Three states with external access systems have initiated user fees. Two charge an annual fee: one is \$200 and the other is \$500. One

Table 5. Staffing requirements for system use

System Type	Maximum	<u>FTE</u>		<u>Dedicated Programmer</u>	
		Average	Minimum	Number	Percent
Mainframe or Minicomputer Only	7.0	3.4	1.0	8	88.9
PC Based System Only	12.0	3.3	0.5	6	60.0
Both Mainframe and PC Systems	6.0	4.1	3.0	2	40.0
Overall	12.0	3.5	0.5	14	56.0

state assesses charges at \$3.10 per hour of central processing unit (CPU) time, \$1.25 per hour of connection time, and \$.15 per megabyte of disk storage.

Marketing and User Support

Intended data system users, their knowledge and computer experience, specific data and application needs, and willingness to invest time to learn about and contribute to the system all affect the importance of information to the system's success. System information can take a number of forms: announcements about the existence of the system and its important services, manuals and conferences for system users, and on-line help systems to guide users through a session with the system. The level of user support provided by the states returning the survey differs with the specifics of their particular systems.

User Categories

States were asked to list primary users of their economic development information systems and these are summarized in Table 6. Many listed more than one user category, although the agency's development analysts were exclusive users in six of the 25 states with automated systems. Local economic development agencies, chambers of commerce, or local leaders were listed by nine states with automated systems. Businesses and the general public were cited by eight states. It is interesting to note that other agencies were listed as primary users by only two states, even though

they were able to gain access to the system in 18 states. This fact could point to a problem with coordination among state agencies, which is discussed below.

Table 6. Categories of system users

System Users	States with Automated Systems	
	Number	Percent
Agency Exclusively	6	24.0
LEDA and Chambers	9	36.0
Business and General Public	8	32.0
Other Agencies	2	8.0
Universities	2	8.0

User Education and Support

System marketing and user support are important to accomplishing objectives of many development information systems. Of 25 states reporting automated systems, 14 indicated that they aggressively market their information systems to local development offices and other possible users (Table 7). A number of different marketing tools were mentioned; they ranged from simple press releases to demonstrations at workshops using portable computers. Most agencies regularly publish development newsletters to disseminate information about the systems. However, many states prepare special pamphlets and use direct mailings to potential users. Washington announces system information to potential users through a regional computer users' newspaper. In Missouri, conferences and demonstrations to local economic development agencies are an important part of their marketing effort, since community participation improves the accuracy of community-specific data.

Table 7. Education and technical support

	Marketing	Manuals & Workshops	Expert Systems
	number of states		
External Access	13	16	5
No External Access	1	1	0
Overall	14	17	5

Manuals and/or workshops have been developed and presented by 17 states, but only five indicated having expert systems or on-line help for users. Some states mentioned developing such systems as a priority for future system improvements.

As expected, marketing and support are more important for users of remote external access systems. Of 18 states with remote access systems, 13 employed aggressive marketing efforts to disseminate information, while only one of seven states without external access did so. Likewise, documentation or training was available for almost 90 percent of external access systems, while only one non external access system provided user manuals or training.

Economic development information systems managers were asked to evaluate "the level of local knowledge of the economic development data system." As Table 8 shows, two rated local knowledge "poor," 14 "fair," six "good," and one "excellent." These evaluations were affected somewhat by system marketing programs. None of the states using such programs rated local knowledge of the system as poor; in both states with local knowledge of the system rated as poor, no marketing efforts had been undertaken. The only state ranking local knowledge "excellent" was a state in which marketing efforts had been undertaken.

Table 8. Ranking of local system knowledge

	Poor	Fair	Good	Excellent	Total
With Marketing	0	10	3	1	14
Without Marketing	2	4	3	0	9
Overall	2	14	6	1	23

Content and Quality of the Data

States responding to the survey differed widely with respect to the breadth of their stored and maintained data. This is not surprising, given the variety of systems being used. Data choice is affected by many of the same considerations that dictate system choice: intended users and their data

needs, as well as budget and resources available from other organizations. The agency's system objectives also affect the data chosen for inclusion in the system.

The most comprehensive economic development information systems deliver eight categories of data. Within each of these categories, specific elements differ from system to system. Often, particularly with respect to economic and environmental data, the scope of the available data is so broad that the user is referred to a local state data center agency or state environmental office to gather information on specific items. These major elements are:

- General economic and demographic data;
- Employer listings;
- Available building sites;
- Comparative tax rates and costs within and among states;
- Guides to state regulations and governmental assistance programs;
- Guides to the identification of available technologies and identification of experts who may provide assistance in marketing and developing products;
- Import and export data; and
- Identification of domestic and international marketing opportunities.

General Economic and Demographic Data

The most important source of general economic and demographic statistics is the U.S. Department of Commerce State Data Center Program. This program has local affiliates in each state that are depositories for all Department of Commerce data. The most widely used series that the department distributes includes the population, income, and occupation data from the decennial Census of Population, county level employment and establishment data collected by the U.S. Bureau of the Census and published in *County Business Patterns*, and the Bureau of Economic Analysis Regional Economic Information System data. Some agencies maintaining the economic development

information systems are also local state data center affiliates. These systems draw heavily upon the U.S. Department of Commerce data as part of their centralized information system. For example, the Delaware State Data Center is part of the Delaware Development Office, and their information network allows access to a variety of U.S. Department of Commerce data. In other cases, agencies are loosely affiliated with their state data centers, allowing them to access the data, even though it is not an integral part of the development agency's system.

The geographic breadth of available economic and demographic data varies among states. Some states maintain national economic data and data for other states to facilitate comparison among their own state economies, the national economy, and other states' economies. This type of comparative data is often used in industrial recruiting efforts and in preparing community, county, and state profiles.

Employer Listings

Automated employer listings are components of the economic development database in 25 of 35 responding states. Of these 25, seven maintain these data only for the manufacturing industries. One state indicated that these data are maintained only for the manufacturing and mining industries. Information system managers were asked specifically about the sources of these data. Table 9 lists the most frequently cited sources of this and several other databases. Most states obtain employer listings either from a private vendor, such as Dun & Bradstreet's database, *Dun's Market Identifiers*, or from state administrative records. Minnesota uses data from the Small Business Administration. Some states begin with a private vendor listing, and use state administrative files to update the list periodically.

Firm births and deaths are often tracked by state development agencies in order to update employer listings, to anticipate changes in income support service demand, or as indicators of general

Table 9. Sources of commonly maintained data

	Employer Listings	Firm Births and Deaths	Available Sites
Number Tracking	25	18	29
Commonly Listed Sources	Private Vendor State Administrative Records	Secretary of State Clipping Services Chambers of Commerce ES-202 Bankruptcy Records	Local Development Officials Real Estate Brokers Commercial Banks

economic health. Births are most often tracked through the secretary of state, whose office keeps track of new incorporations. Other sources mentioned include clipping services, surveys of local chambers of commerce, ES-202 data, or some combination of these.

The use of ES-202 data to track employment and firm births and deaths differs widely among states. The level of access that economic development agencies have to these data depends on arrangements they have negotiated with employment security agencies in their states. The Minnesota Department of Trade and Economic Development has surveyed state development agencies to determine the extent of states' access to ES-202 data. Results indicate that 35 of 49 states responding did have access to ES-202 data on an establishment basis. However, few states use these data to track firm births and deaths. The most commonly cited uses were identifying high-growth industries and updating employer listings.

A few states expressed frustration with the difficulty and legal complexities of arranging access to establishment level ES-202 files. In general, an agency must agree not to disclose any data that reveal explicitly or allow inference of employment or payroll of any single firm. This requirement is necessary to maintain the confidentiality of any data collected through the unemployment insurance system.

Available Building Sites

Automated lists of available buildings and sites within states have become important components of the economic development data systems in many states. Lists of available buildings usually are stored with detailed descriptions of their physical characteristics so prospective clients can determine what sites might fit their needs. Files describing vacant land within the state are sometimes included in these lists.

These data are derived from a variety of sources. Active participation by local leaders, development agencies, and chambers of commerce is often encouraged or required. In Missouri and Michigan, local development agencies are able to update lists automatically with the dial-in feature of the system. This not only adds to the accuracy and timeliness of the data, but also decreases the burden of data collection for the state agency.

Data to Aid Business Growth and Decision Making

Some available data on economic development information systems are directed specifically to businesses and potential entrepreneurs. Comparisons of the cost of living and doing business between and within states, including tax rates, wages, rents, and transportation costs, are often available. This is one of the most important differences between the quality and availability of urban and rural data.

Regulations and licensing requirements to establish a new business can be very confusing, and many state systems include guides to these regulations. Lists of alternative sources of financing, including venture capital, also are provided through some systems. Identifying sources of technical assistance for new firms and established firms trying to upgrade their technology is another service that may be provided. Maryland's system, which was designed primarily for small businesses, provides all of this information, plus a "bid board," which enables businesses to bid for Maryland and federal government contracts through the data system.

International trade is recognized as an important element of the potential for regional economic growth. Some states provide information on their level of imports and exports. In the most comprehensive systems, U.S. Department of Commerce information on overseas trade opportunities is available to subscribers. These systems have been established to help local buyers and sellers build their own international markets. Some states, in an attempt to promote state business, provide lists of potential in-state suppliers, as well as potential buyers, for a firm's final product or service. Minnesota's trade office database has information collected from more than 3,500 Minnesota firms that are currently exporters or have export potential.

The list of data items enumerated here is generally available in all states, but not all have centralized their data collection and dissemination efforts. For example, some development agencies work closely with their state data centers to make census data available through their systems, and also coordinate with the labor market information agency, the departments of health and education, and other related state agencies. Indiana's Economic Development Information Network (EDIN) is a good example of a comprehensive system in which all state agencies contribute to the database.

In some states, data offered by the development agency are limited to items directly pertinent to their marketing and recruiting efforts, such as available sites, tax information, and community profiles. This may be due to the agency's assigned role of developing the state economy, or it may reflect the agency's development philosophy. Agency leaders may feel that extensive data collection and dissemination are not an important part of their development role.

In the absence of a highly centralized, coordinated statewide data system, the development office system may be only a small component of the total data package available from all state agencies collecting and disseminating data. A desire to prevent duplication, but a lack of funds to coordinate different agency databases, may prevent a development agency from collecting and

maintaining its own comprehensive data system. A Washington development analyst mentioned that coordinating with other agencies was difficult because of a lack of common data architecture.

Problems with data coordination can often be addressed through establishing a formal data group of state economists, statisticians, and other users of state maintained data. Coordinating agency system and data structure can lead to an effectively centralized system. However, formal data groups to discuss these issues and coordinate data efforts exist in only 10 of the responding states.

Data Applications

One of the most common applications of rural economic development data is the preparation of community profiles. Eighty percent of development agencies returning the survey indicated that they prepare community profiles. In Nevada and North Dakota, community profiles are the responsibility of local development agencies; in Colorado, its Department of Local Affairs prepares these profiles. The participation level of local officials and development agencies in this activity varies from state to state. In some states, the local economic development agencies are primarily responsible for providing basic qualitative data on such issues as infrastructure, health care, or recreation facilities. In some states, community profiles are automated, so appropriate data are automatically loaded into the community file. New York is currently developing a system with on-line community profiles.

Other applications of data provided by development agencies include identifying distressed areas, developing regional opportunities, informing potential clients, developing special preference criteria, and evaluating development programs. Resource allocation and decision making also were mentioned.

Rural-Urban Differences

Discussions of data needs at the state and local levels often lead to debate over differences in the quality and quantity of data describing rural and urban areas. There are a number of reasons for these differences. Many categories of data collected by the U.S. Census Bureau apply to metropolitan statistical areas but not to smaller communities. County level data often mask the mix of urban and rural areas within a county. When data are derived from statistical samples, such as the Current Population Survey, very small communities often are not sampled as intensively as densely populated areas due to resource constraints.

In order to evaluate the seriousness of these data differences, several relevant questions were included in the survey. One asked if development data systems managers perceived any difference in the availability and quality of rural versus urban data. Eight states indicated that rural data were weaker. Specific areas in which rural data were considered weak were infrastructure data, tax rates, and subcounty data.

The rural data problem also surfaced in answers to other questions. Available sites data often are collected with a survey form sent to local economic development agencies, community government, or chambers of commerce. The response rate for these surveys from rural areas was lower than the response rate from urban areas in seven of the 17 states responding. Comments regarding the difficulty of obtaining rural data surfaced in the general questions about strengths and weaknesses as well.

There were two reasons cited when the quality and quantity of rural data were considered inferior. First, many states rely on local economic development agencies to provide information on buildings and sites, as well as some qualitative data used for community profiles. Small communities may not have the staff and resources needed to collect these data. Furthermore, if no development professional is part of community government, the importance of collecting these data may be

overlooked. Nondisclosure requirements designed to maintain confidentiality of firms was cited as another barrier to obtaining rural data.

Strengths and Weaknesses

By asking each system manager to describe the strengths and weaknesses of the agency's data system, we hoped to learn about the trade-offs involved in designing and maintaining an economic development information system. From the survey responses, we learned that such trade-offs exist in every major component of the design, maintenance, and support of an economic development information system.

Basic System Characteristics

Several states with PC systems considered the user-friendliness of their systems an important advantage because it increased the level of use. However, one respondent stated that the mainframe system employed by the agency, while requiring more user skill, also provided the needed flexibility to build a customized data base. It is important to remember, however, that a more flexible system may require more extensive documentation and more intensive training.

Development and Maintenance

A lack of cooperation among state agencies was cited as a weakness inhibiting data sharing among agencies. Coordination of agency systems may limit any one agency's choices among system characteristics because of the necessary compromise, but the benefits from interagency cooperation can be extensive. A wider variety of data, additional computer power, and more data applications are only a few possible benefits from careful planning and interagency cooperation.

Marketing and User Support

The role of local economic development agencies in collecting community data was mentioned as both a strength and a weakness. Several states noted that the unresponsiveness of these agencies and community governments to surveys damaged the integrity of their community data. However, one state agency listed as a strength the ability of local development agencies to dial in updates of databases they help to maintain. This points to the importance of marketing and user support in the overall effectiveness of an economic development data system.

Data Content and Quality

The variety and quantity of data are only two aspects of their value to users. Florida noted that it is proud of how comprehensive its data menu is, but that its development agency has a difficult time keeping the data current. An alternative to offering a wide variety of data is to choose a more narrow audience and fine tune the data menu to best fit targeted users' needs. The Minnesota Department of Trade and Economic Development has decreased the amount of data it offers, eliminating some that are available from other sources. The data it continues to make available are richer, and the delivery system is more user-friendly.

Desired Technical Assistance

In order to provide workshop and conference ideas to assist state agencies in developing data systems to meet their needs, we asked information systems managers what types of technical assistance would be most helpful to the continuing development of their data systems. The responses can be classified into three general categories: technical help with system architecture, assistance in obtaining and using data for economic analysis, and coordination and leadership. Most states also expressed dissatisfaction with funding allocated to developing and maintaining the economic development data system.

States desiring technical assistance with respect to system configuration were generally those that had not yet established an automated system, or those that had relatively new systems. Data and econometric issues mentioned included obtaining and using ES-202 data, tracking firm births and deaths, and forecasting and regional analysis. Coordination and leadership issues related to training and motivating local economic development agencies, and coordinating among state agencies to increase the level of data available to all agencies while decreasing duplication of effort were considered important by respondents.

Conclusions and Recommendations

This analysis has illuminated a number of important issues directly related to the design and implementation of an effective, efficient economic development data system. The systems managers' responses to survey questions provided some perspective from which to discuss issues of basic system architecture, system development and maintenance, marketing and user support, and data quality and quantity. For each of these areas, there are several recommendations to improve existing systems and to develop new systems. Many of these recommendations are difficult to classify among these categories, because each affects the other. For example, basic system characteristics determine, in part, who the primary users will be, which should focus the marketing and user support effort. Marketing and user support, especially for those contributing to the database directly, can improve the quality and timeliness of data. The variety and detail of data affect the labor cost of setting up and maintaining the system.

Basic System Characteristics

The agency's goals for its data system should be clearly expressed and understood. Designing the system to maximize benefits even with limited resources requires a keen understanding of what is to be accomplished. Once goals are identified, targeted users can also be identified, and the system

can be designed with their knowledge and capacity in mind. For example, the Maryland TeleSonic system is especially well-suited to its intended users—small businesses and individuals—because it requires no more sophisticated equipment than a touch tone telephone.

Other state agencies, particularly those maintaining data that may be valuable to targeted users, should be consulted so that the data system, if possible, can be constructed to enable data and burden sharing. Forming data user associations to discuss computing, data needs, and possible interagency applications would be one way to coordinate system sharing.

System Development and Maintenance

Efforts should be made to enlist the resources of universities and other agencies or state data centers. The experience and specialized knowledge of these organizations can be a valuable resource that should not be overlooked. Agreements to share data, hardware, and programming and data maintenance responsibility can subtract from the heavy burden that automated data system maintenance can place on a development agency.

Users in close contact with a particular data set, for example, the secretary of state for new incorporations or local economic development agencies for available buildings and sites, should be recruited to assist in data maintenance. With the help of a well-planned data system, this can be a simple matter that requires little additional work for the group in question, beyond what is required for their own record keeping.

Marketing and User Support

Marketing and training efforts should be specifically for the targeted user, and, for users who contribute to the system's data maintenance, should be as detailed as possible. Encouraging local development agencies to be actively involved in the data system may dispel some of the apathy that has plagued development agencies relying on small communities' participation. Giving local

development leaders individualized assistance with the system may help them understand and appreciate it, and encourage them to care about its success.

Users should be given a role in system upgrades and improvements by test marketing particular data sets and services. Procedures to track data requests are in place in only 36 percent of states with automated systems. Although another 12 percent are planning such procedures, the ability of systems managers to learn of and respond to user demand is limited and should be expanded. The best test of the value of information and services is to learn what users will pay for them. Despite the benefits of providing free economic development data, the cost in terms of information about the value of data and services should be investigated.

Data Quality and Quantity

Cooperation among states in collecting and disseminating data could lead to each state's ability to gain access to national data while decreasing the workload for all states. Linking state data systems and their managers through a network to exchange information and techniques would be a definite advantage. The ongoing mission of such an organization should be to explore new data sources, techniques, and applications, and to make these available to all participating states.

Nontraditional data sources should be explored to supplement traditional sources, especially in rural areas where traditional data sources have less integrity. Recruiting the cooperation of other state and federal agencies, and private firms in collecting data and designing a system in which their input contributes directly to the economic development database can greatly improve the richness and quality of the data.²

The importance of keeping pace with the changing roles and responsibilities of state economic development agencies dictates continued progress in providing of economic development data. Future improvements should stress linking new systems and new users to existing systems; integrating new techniques for data collection, storage, retrieval, and analysis; and providing the client support to

continue using and contributing to system development in a meaningful way. Use of the data systems should be continually monitored, and specific data and services should be evaluated periodically.

A survey in another two or three years will probably reveal that many of these problems have been solved, but that new problems, associated with policy approaches and more advanced and comprehensive systems, will surface. Economic development analysts will continue to strive to develop innovative methods of addressing the important issues complicating their economic development objectives.

A handwritten signature or mark, possibly "B. J. ...", is visible at the bottom center of the page.

APPENDIX A

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- c. *What types of hardware and software are used to maintain and to access the host system?*

Mainframe:

Recommended communication software:

- d. *How was the data system set up?*

Agency staff	<u>12</u>
Outside consultant	<u>2</u>
Other (explain)	<u>11</u>

- e. *Where is the system located?*

Economic Development Agency	<u>18</u>
Central Administrative Agency	<u>1</u>
University	<u>3</u>
Other (explain)	<u>3</u>

- f. *Annual cost of maintaining the system:*

What is the size of the staff dedicated to the system (full time equivalents)? _____

Does the system have a dedicated programmer? Yes 14 No 9

Approximately what proportion of total costs are recovered through user charges? _____

- g. *Does the state economic development agency have a marketing program to inform local economic development offices and other possible users of the existence and uses of the data system? If so, please describe*

Yes 14 No 10

APPENDIX B

Survey of Economic Development Information Systems*

Please answer each of the following questions. Many of these questions may be answered with readily available printed documentation. If so, simply attach this documentation.

1. *Does the state economic development office have a centralized, automated information system?*

Yes 25

No 10

If so, could you please provide prepared documentation on this system?

If the documentation which you provide does not address the following questions, please provide information on these items.

- a. *How is the data available?*

Mainframe access, by modem
Microcomputer diskette
Hardcopy
Other (explain)

18**
17
18
7

- b. *If the data are available by phone access using a modem, please answer the following questions:*

Does the system use an 800 number? Yes 7 No 12

If so, at what cost to the agency? _____

Is the system available on a 24 hour basis? Yes 19 No 0

*Frequencies for questions that are not open-ended are provided on this survey.

**Modem access to networks is included in this category.

Has the state provided manuals, or offered workshops on the use of the data system?

Yes 17 No 8

How would you rate the level of local knowledge of the economic development data system?

<i>Excellent</i>	<u>1</u>	<i>Good</i>	<u>6</u>
<i>Fair</i>	<u>14</u>	<i>Poor</i>	<u>2</u>

- h. Does the state have an "expert system" or on-line help system to assist in accessing, or interpreting data? If so, please provide information on this system (e.g., where was the software developed?).***

Yes 5 No 20

- i. Does your office keep track of specific data items requested or items requested though not available? If so, could you provide a short summary of your findings?***

- j. Could you please provide a "sample screen" from the system?***

2. System Elements:

2a. *What are the main modules, or components of this data system?*

2b. *How often are the major elements of the system updated?*

2c. *Does this system provide centralized access to national economic and demographic data? If so, what is the source of this data?*

Yes 15 No 11

2d. *Does this system provide centralized access to economic and demographic data from other states? If so, what is the source of this data?*

Yes 11 No 15

3. Users of the Data System:

3a. Who are the primary users of, or subscribers to, the data service? (Please provide an approximate proportionate breakdown of users).

3b. What (if any) charges are there for access to the data system?

Annual Fee \$ _____

Access Charge \$ _____

Other (explain) \$ _____

3c. Do other state agencies have free access to your data system?

Yes 18 No 7

4. Is there any formal relationship between the Department of Economic Development and a university for the creation or maintenance of the data bases? If so, what types of funding does the university receive?

Yes 12 No 13

5. Primary Sources of Data

(Some of these questions may overlap information provided above. If so, ignore.)

a. Does your office maintain an automated listing of employers in the state?

Yes 25 No 10

i) What is the source of this information?

Private Vendor 7
 State Administration Records 12
 Other (explain) 8

ii) How often is this listing file updated?

iii) How does the state track firm births and deaths?

Births:

Deaths:

iv) Does the state economic development office make extensive use of the ES-202 file in tracking state employers and substate employment trends?

- v) *Does your state have any special confidentiality requirements, pertaining to the ES-202 files?*

- b. *Does your state maintain a listing of available industrial sites and/or buildings (e.g., industrial parks or vacant buildings)?*

Yes 29

No 5

- i) *What is the source of this information? (If a mail survey, please provide a copy of the survey).*
- ii) *How often is this listing updated? Who initiates the updating?*
- iii) *Does the state economic development office make extensive use of the ES-202 file in identifying potential sites (e.g., through the identification of plant closings)?*

6. **Community Profiles:** Does the state economic development agency regularly produce community profiles? If so, could you attach a representative copy for an urban and a rural community?

Yes 28

No 7

- a. What is the primary source of the nonstatistical data in these profiles (such as the numbers of parks, hospitals, transportation, etc.)?

If a regular mail survey, please enclose a copy of the survey form.
Also, please answer the following:

- (1) How often are the communities surveyed?

Annually	<u>17</u>
Biannually	<u>1</u>
Irregularly	<u>2</u>

- (2) What is the response rate to the survey in urban areas?

less than 50%	<u>0</u>
50% to 75%	<u>2</u>
75% to 90%	<u>4</u>
over 90%	<u>11</u>

(3) *What is the response rate to the survey in rural areas?*

<i>less than 50%</i>	<u>3</u>
<i>50% to 75%</i>	<u>4</u>
<i>75% to 90%</i>	<u>5</u>
<i>over 90%</i>	<u>5</u>

b. Do you perceive any substantive imbalance in the quality of data between urban and rural areas in these profiles? If so, what are the most troublesome or blatant imbalances?

c. Approximately what proportion of the state population is not currently covered by one of these community profiles?

7. Does the state economic development department regularly produce analytical profiles (comprehensive statistical analysis of substate economic activity for use by analysts in assessing broad economic trends)? If so, could you attach a representative copy for urban and rural areas?

a. Do you perceive any substantive imbalance in the quality of data between urban and rural areas in these profiles? If so, what are the most flagrant examples of these data imbalances?

b. How much of the state is not covered in these analytical profiles?

c. Do any other agencies or one of the of the state's universities regularly produce local area (e.g., county level) analytical statistical profiles? If you have copies, could you provide illustrative examples for urban and rural areas?

8. *Is there any formal group of database managers, economists or analysts who regularly meet to discuss state and substate economic data and other database issues (other than the state Occupational Information Coordinating Committees, unless the members of this committee deal with issues beyond labor market information)?*

If so, please provide information on this group.

9. *Do you track or monitor the origin and industry of prospective "new employers" interested in relocating...firms which make phone requests for information? If so, have you produced summary reports? (Please enclose a copy).*

10. *Are you aware of any automated data systems maintained by a different state government agency relating to any of the topics listed below. If so, do you have access to these data systems? Who should be contacted regarding these data systems?*

a. Housing stock, quality, availability and price

b. Health care service provision, quality and cost

c. Road, highway and bridge quality and use

d. Social service use; i.e., AFDC recipients, Medicare/Medicaid clients, etc.

e. Water availability, quality and uses

11. *Is there an on-line automated economic development program directory (e.g., a directory of permitting requirement or available financial and technical assistance)?*

Unique Data Collection Efforts

- 1. Have there been any comprehensive efforts in your state to create and maintain a data system on physical infrastructure and infrastructure needs?**
- 2. Have there been any substate labor force skills surveys?**
- 3. Does your office (or any other office) make any efforts to create and maintain comprehensive information on the relative cost of living in areas within your state?**
- 4. Does your office or any other office make any efforts to create and maintain comprehensive information on the relative cost of doing business in areas within your state?**
- 5. Are there any other special data collection efforts or surveys that you are aware of which would be useful in economic development planning, monitoring and program evaluation?**
- 6. Have there been any special efforts to address imbalances in the urban and rural data coverage or quality?**

General Questions

- 1. What do you view as the major weakness of your information system...The particular weakness with regard to information on rural areas of your state?***
- 2. What are the major strengths or unique features of your economic development data system?***
- 3. What refinements have been made to your data system based upon your experience with it?***
- 4. How has the economic development data system been used to support the operation or design of economic development programs (for example, in the allocation of resources among communities)?***
- 5. What sort of technical assistance do you feel would be most beneficial to you in improving the quality of your data base system and its coverage of substate areas (For example, technical assistance conference on specific data and analysis issues, workshop on improving information flows)?***

ENDNOTES

1. Minnesota's economic development office responded to the survey with respect to its internal system only. However, another system, called DATANET, is maintained by the Minnesota State Planning Agency. DATANET has been widely recognized as one of the most comprehensive and state-of-the-art information systems in the nation. However, since this survey was directed to development agency personnel, survey responses do not include the DATANET system.
2. For further information regarding sources and uses of nontraditional data, refer to McHugh et al. 1991.

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